



# Forecasting WEEE Arising for Electric Vehicle Batteries and Photovoltaic Panels in Ireland

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## Identifying pressures

International energy systems are facing radical changes due to factors such as the electrification of the transportation network and the decarbonisation of the electricity grid. While these developments bring us closer to achieving sustainable and renewable energy systems, they also present a new set of challenges in sustainable management of the associated waste electrical and electronic equipment (WEEE).

One area where these challenges will be particularly evident is in the field of long-life WEEE. Long-life WEEE, or LongWEEE, are electronic appliances and devices that have extremely long use phases or lifetimes compared with the average life cycle of most electrical and electronic equipment. It is imperative that the WEEE management system is prepared to deal with the types and levels of LongWEEE in the future, from both an infrastructural and financial perspective.

The two specific LongWEEE sectors considered in this report are solar photovoltaic (PV) panels and electric vehicle batteries (EVBs). For each sector, projections on the quantities of material expected at end of life and associated financing implications for recycling are assessed and discussed.

## Informing policy

The report provides a concise analysis of LongWEEE, specifically the solar PV panel and EVB sectors, projecting the future volumes and considering the financial flows related to these long-life emerging technologies.

A failure to adequately plan for the recycling of these long-life products now may lead to an inadequately financed WEEE recycling system, or one that becomes prohibitively expensive for new market entrants to join.

This research project will support the decision-making process for sustainable WEEE management, providing an evidential basis for the short- and long-term implications of decisions. The report will also help inform the WEEE management system to achieve its mandatory collection and recycling obligations in a financially sound manner.

## Developing solutions

This research report identifies challenges and models scenarios for the sustainable management of LongWEEE, specifically the solar PV panel and EVB sectors.

The report projects the quantities of WEEE generated for both sectors, ranging from present day to 2050. One finding from the project is that there is still a lot of uncertainty regarding the quantities of LongWEEE that will be generated in future, so the WEEE management system needs to be prepared to cover a range of eventualities.

The research project also explores the potential costs of recycling for both WEEE sectors based on current practices and costs. Shipping both EVBs and solar PV panels to European destinations for final treatment may involve significant sums of money in the future. This warrants an investigation of domestic pre-treatment options for LongWEEE to reduce these costs and retain value in Ireland.

The project also considers the relative merits of both “pay when placed” and “pay when collected” approaches to financing such LongWEEE products. Due to the high impact of policy on future volumes of these long-life products being placed on the market and the timespans involved, the “pay when placed” model is considered to be the most prudent approach and in line with the current requirements of extended producer responsibility.

